



A.D. 1849 N° 12,759.

S P E C I F I C A T I O N

OF

ALEXANDER ROBERT TERRY.

MANUFACTURE OF FIREWOOD.

L O N D O N :

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY :

PUBLISHED AT THE GREAT SEAL PATENT OFFICE,

25, SOUTHAMPTON BUILDINGS, HOLBORN.



A.D. 1849 N° 12,759.

Manufacture of Firewood.

TERRY'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, ALEXANDER ROBERT TERRY, formerly of Manchester Street, Manchester Square, in the County of Middlesex, Engineer, now of 14, Wharf South, Wharf Road, Paddington, send greeting.

5 WHEREAS Her present most Excellent Majesty Queen Victoria, by Her Royal Letters Patent under the Great Seal of the United Kingdom of Great Britain and Ireland, bearing date at Westminster, the Sixth day of September, One thousand eight hundred and forty-nine, in the thirteenth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto
10 me, the said Alexander Robert Terry, my exors, admors, and assigns, Her especial licence, full power, sole privilege and authority, that I, the said Alexander Robert Terry, my exors, admors, and assigns, or such others as I, the said Alexander Robert Terry, my exors, admors, or assigns, should at any time agree with, and no others, from time to time and at all times during
15 the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, my Invention of "IMPROVEMENTS IN THE MANUFACTURE OR PREPARATION OF FIREWOOD;" in which said Letters Patent is contained a proviso, that I, the said Alexander Robert Terry, shall cause a particular description of the
20 nature of my said Invention, and in what manner the same is to be performed, by an instrument in writing under my hand and seal, to be inrolled in Her Majesty's High Court of Chancery within six calendar months next and

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immediately after the date of the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said Alexander Robert Terry, do hereby declare that the nature of my said 5 Invention, and the manner in which the same is to be performed, are fully described and ascertained in and by the following statement thereof, reference being had to the Drawings hereunto annexed, and to the figures and letters marked thereon (that is to say):—

My Invention consists of improvements in machinery for cutting or splitting 10 wood, and making the same into bundles suitable for firewood.

DESCRIPTION OF THE DRAWINGS.

Figure 1 shews a plan of the machinery arranged or combined according to my Invention; Figure 2 is a horizontal section thereof; Figure 3, a right hand side view; Figure 4 shews a front view, with some of the parts removed, 15 in order that other parts may be better seen; Figure 5 shews a vertical section of the machinery, and the other views shewn by the Drawings are detail views of some of the parts, in order that their construction may be more readily seen and understood. In each of these Figures the same letters are used to indicate the same parts. *a* is the framing, the nature of which is 20 clearly shewn in the Drawings; *b* is the main or driving shaft, which receives motion from a steam engine or other power by a strap acting on the fixed drum *c*. The main shaft by means of the pinion *d* gives motion to the cog wheel *e*, fixed on the cranked shaft *f*, which turns in suitable bearings, as shewn. The crank shaft *f* gives motion to the cross head *g*, by means of the 25 two connecting rods *h, h*. At each end of the cross head is fixed a plate *g*¹, which is turned up at right angles so as to form a shelf or ledge *g*² for the ends of the blades *i, i*, to rest on (the ends of the blades *i, i*, being notched out in order to their resting on such shelves or ledges *g*² *g*²), and the upper surfaces of the blades *i, i*, will, at intervals in their length, be pressed on by 30 the cross head, and the blades are kept in a vertical position by means of springs or plates *j, j*, of steel, which are fixed at their upper ends above the cross head, and there are openings through the cross head for the passage of the springs. By these arrangements the blades *i, i*, when out of the wood, will all be closed upon by the spring plates *j*, which will cause them to range 35 near together; but so soon as they penetrate the wood, and the blades thereby become more and more separated, the springs separate and allow of the separating of the blades to a greater distance apart; but so soon as the blades

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ascend out of the wood, the cross head causes the spring plates j to come together, and they cause the blades or cutters to come again together, and to be in proper positions for the next pieces of wood to be operated on. The blocks of wood (previously cut into the proper sizes) are fed into the machine
5 in the following manner:— k, k , are two sets of trunks or tubes with hoppers at their upper ends; these trunks or tubes are carried by standards or supports k^1, k^1 . These trunks or tubes are kept filled with blocks of wood l, l , as shewn, so that in the working of the machinery each trunk or tube may deposit one block at its lower end at the proper time, as will be hereafter explained.

10 The machine, shewn in the Drawing, is suitably arranged for operating on ten blocks at a time, so that there are ten supply trunks or tubes k, k , but this may be varied in making other machines according to my Invention. Each trunk or tube k has an instrument m for regulating the time when the blocks of wood l shall be delivered into the machine; one end m^1 of this instrument
15 comes under its tube or trunk k , at one period, and the other or spiked end m^2 of this instrument at another period passes through an opening in its tube or trunk so as to penetrate into the block of wood for the time being opposite the opening; by which means, when the part m^1 is under the trunk, no block of wood can pass, but on the part m^1 moving away, the part m^2 comes into
20 action, so that one block of wood will be allowed to drop out of each trunk or tube k , the other blocks of wood being supported by the other ends m^2 of the several instruments m . In order to actuate the instruments m , there are springs m^3 fixed to the ends of the axes m^4 , on which the several instruments m are keyed or fixed, and these springs are acted on in the following manner:—

25 n is a rod which rises up through the cross head, there being a key n^1 through the upper part of the rod n , as shewn. The lower part of the rod n is formed into an eye, so that it can be moved up and down notwithstanding the crank shaft passes through the eye; n^2 is a weight which tends at all times to draw down the rod n . The rising and falling of the bar n gives motion to the levers o, o ,
30 which are fixed to the axes o^1, o^1 , and o^2, o^2 , are two arms fixed to the axes o^1, o^1 , and they receive motion by being connected, as shewn, to the eye at the lower end of the rod n . The levers o, o , have slots at their upper ends, in order to their being connected to the carriages p , which are hereafter explained, and the levers work through slots cut in the table a^1, a^1 , of the
35 machine. The carriages p are employed for the purpose of moving the wood to the cutters, and from them after they have been cut or split, in order to such split blocks being pressed into bundles, received into suitable apparatus to hold them in the form of square bundles, when being bound with suitable yarn or cord, all which will be fully described hereafter.

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Each of the two carriages p consists of the upright plate p , having flanged wheels at each end to run on the rails a^2, a^2 , fixed on the table a^1 of the machine, and the plate p is supported in its upright position by the two centre plates p^1 at their ends resting and sliding on the table a , and the plates p^1 carry springs p^2 , which, as the carriages go in, pass the blocks, when they 5 have descended from their trunks or tubes, and come into positions suitable for moving the blocks from under the cutters after the blocks have been split; the springs p^3 fixed to the plate p pressing on the blocks, when the blocks come against the springs a^3 fixed on the table a^1 of the machine. And in order to keep the blocks upright as they go into and out of the machine, 10 springs a^4, a^4 , fixed to the table a^1 , are used. And it is by reason of the plates p passing against the springs of the instruments m as the carriages go out to deliver the split wood, and come back into the machine to bring in fresh blocks of wood to be split, that the springs are moved, and consequently the instruments m put into action so as to regulate the supply of blocks of wood on to 15 the table a^1 into position to be taken in by the return of the carriages p, p , towards the centre of the machine, all which will readily be traced on a careful examination of the Drawings. The blocks of wood having been split and carried out by the carriages p , they are next to be operated on by passing pressing rollers q, q , to which they are brought by the going out of the 20 carriages, and they will drop into the openings or guides r, r , and the revolution of the rollers q, q , will pass the blocks between them, and as the split blocks descend through between the rollers in a somewhat compressed state, they will enter openings in the plate s , which rests properly upon the parts t, t , so that each split block will be held about the middle of its length by the 25 plate; in which condition, when the plate is removed from the rests t, t , the several split blocks may be tied or bound round with suitable yarn or cord, and thus be held as bundles of fire wood. Motion is communicated to the rollers q, q , in the following manner:— u is a pinion on the main shaft or axis, which takes into and drives a cog wheel on the axis of one of the pairs of rollers q, q , 30 and on the axis of this roller q is fixed the cog wheel v , which takes into and drives one of two intermediate cog wheels w, w , and these intermediate cog wheels gearing together, the second one gives motion to a cog wheel x , fixed on the axis of one of the other pair of rollers q , as is indicated by red circles, shewing the pitch lines of the several cog wheels above mentioned. The 35 pairs of rollers q, q , are respectively geared together by cog wheels y, y .

Having thus described the nature of this machine, I will proceed to explain how the cross cutting of the wood is accomplished, the description thus far even only shewing how the wood is cut or split in one direction by a series of

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parallel cutters. And in order to obtain the cross cuts every alternate cutter is made with an opening or slot in it, so as to receive cutters *z*, as will be seen in the enlarged views of these parts shewn separately; these cutters *z* slide freely in the slots or openings formed in the cutters *i*, and they are brought
5 together into the centre by the springs before described, so that they as well as the cutters *z* will be as near as they can come together when they are about to penetrate the wood, and the cutters *z* as well as the cutters *i* can separate from one another as they enter the wood.

Having thus described the nature of my Invention, and the manner of per-
10 forming the same, I would remark, that I make no claim to the separate mechanical parts herein described, nor do I confine myself to the details, as herein explained, so long as the peculiar character of my Invention be retained; but what I claim is the mode, herein described, of combining parts into a machine.

15 I also claim the mode of arranging and constructing cutters *i* and *z*, so as simultaneously to cut or split in two directions, as described.

And I also claim the use of the rollers *q*, *q*, with suitable receivers for the split blocks, in order to facilitate the binding of the bundles.

In witness whereof, I, the said Alexander Robert Terry, have hereunto
20 set my hand and seal, this Sixth day of March, in the year of our Lord One thousand eight hundred and fifty.

ALEX. (L.S.) R. TERRY.

AND BE IT REMEMBERED, that on the Sixth day of March, in the year of our Lord 1850, the aforesaid Alexander Robert Terry came before
25 our said Lady the Queen in Her Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

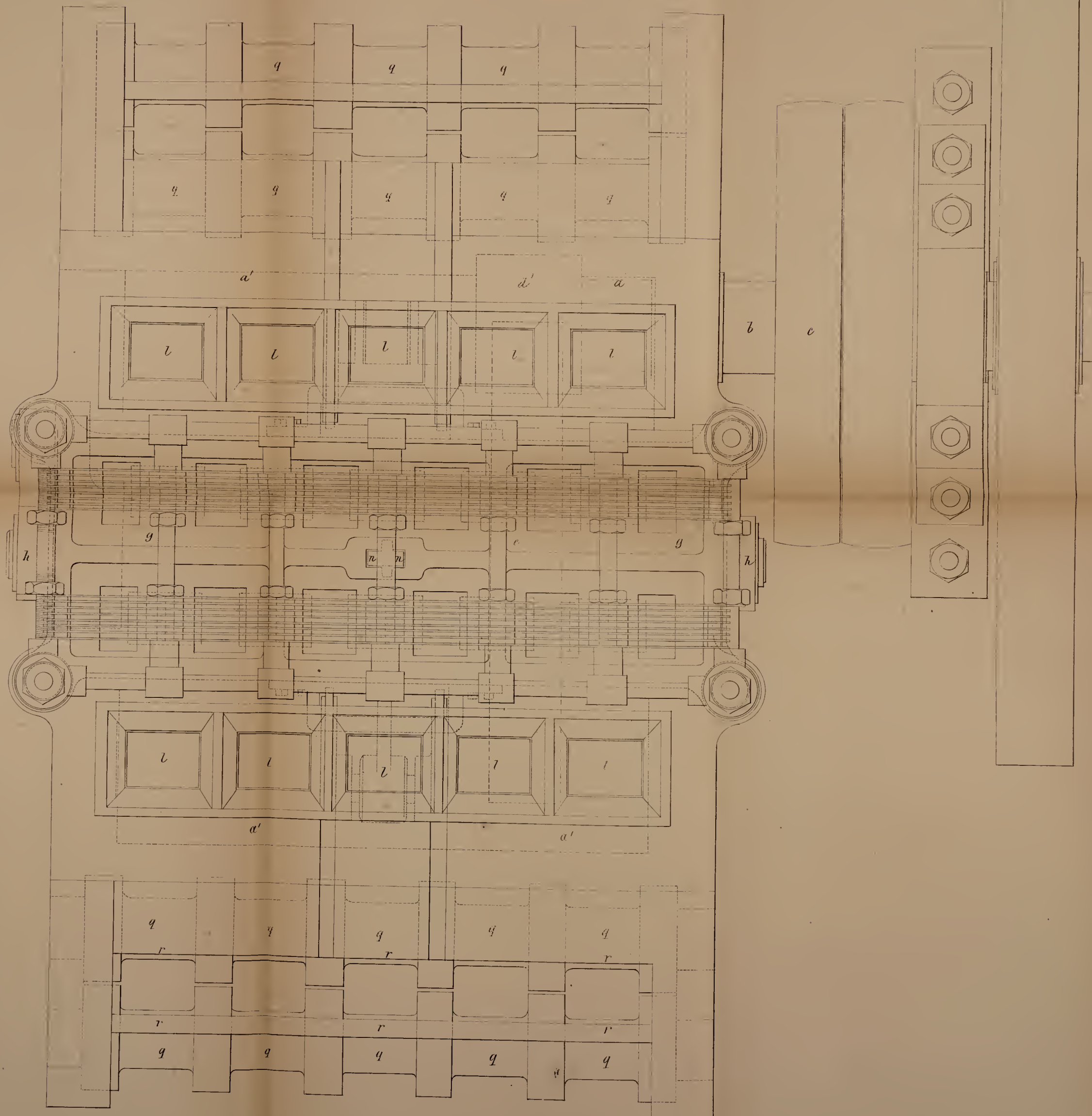
Enrolled the Sixth day of March, in the year of our Lord One thousand
30 eight hundred and fifty.

LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1857.

A.D. 1849, SEP. 6, N^o 12,759.
TERRY'S SPECIFICATION.

F I G. 1.

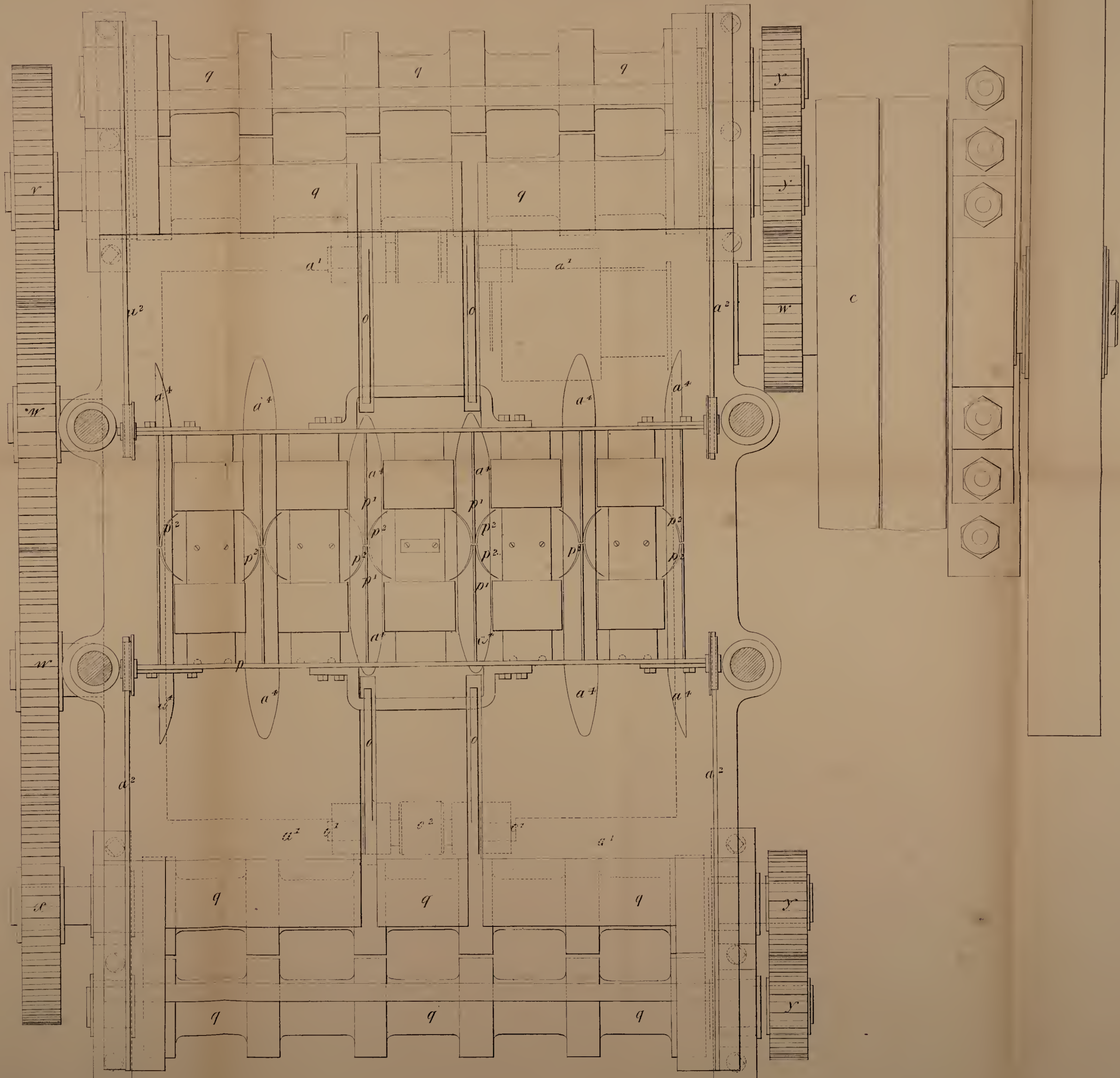


The enrolled drawing is not colored.

Drawn on Stone by Malby & Sons

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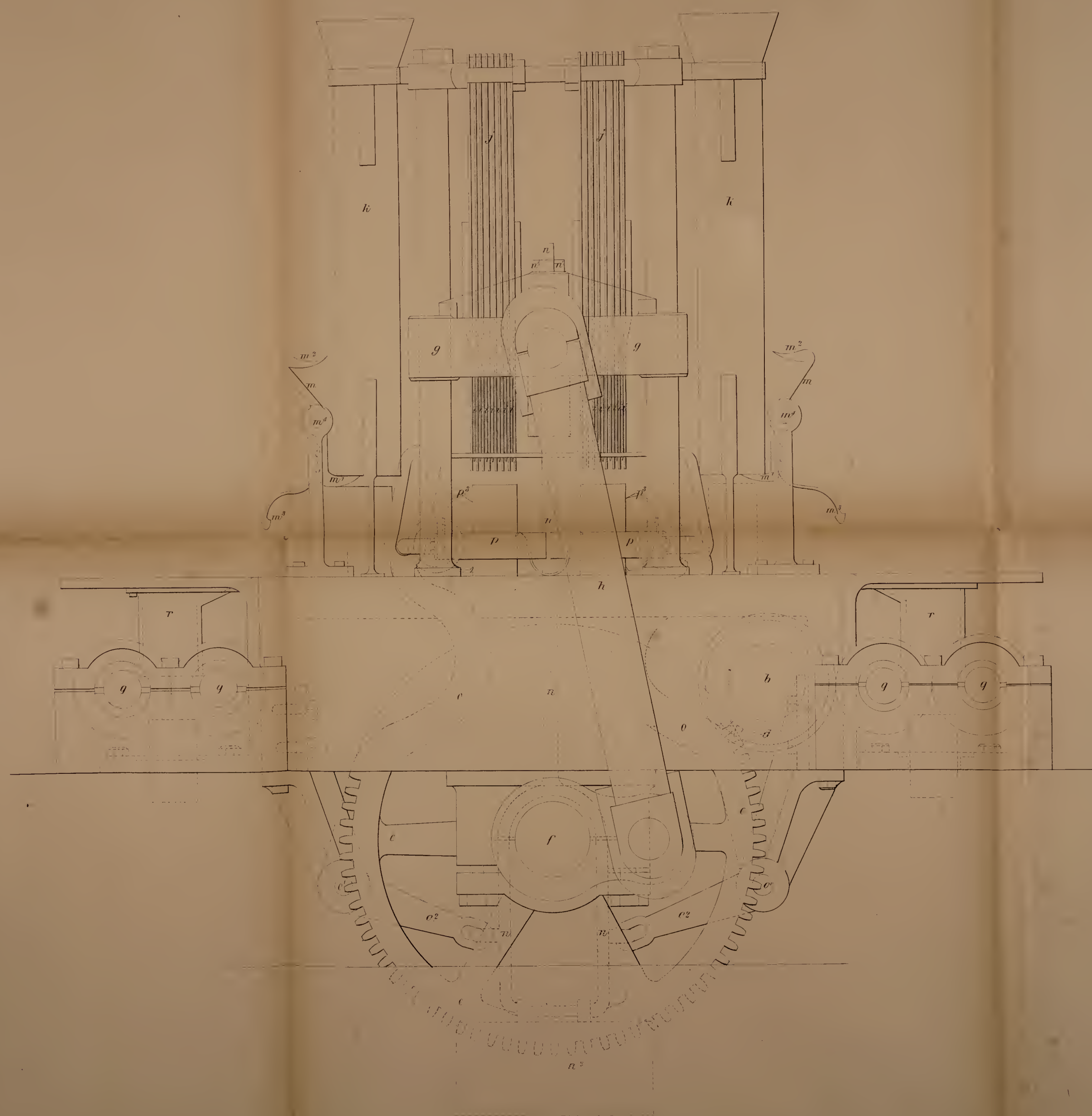
FIG. 2.



The enrolled drawing is not colored.

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F I G . 3 .



This corrected drawing is partly altered

Drawn and engraved by M. A. & Sons

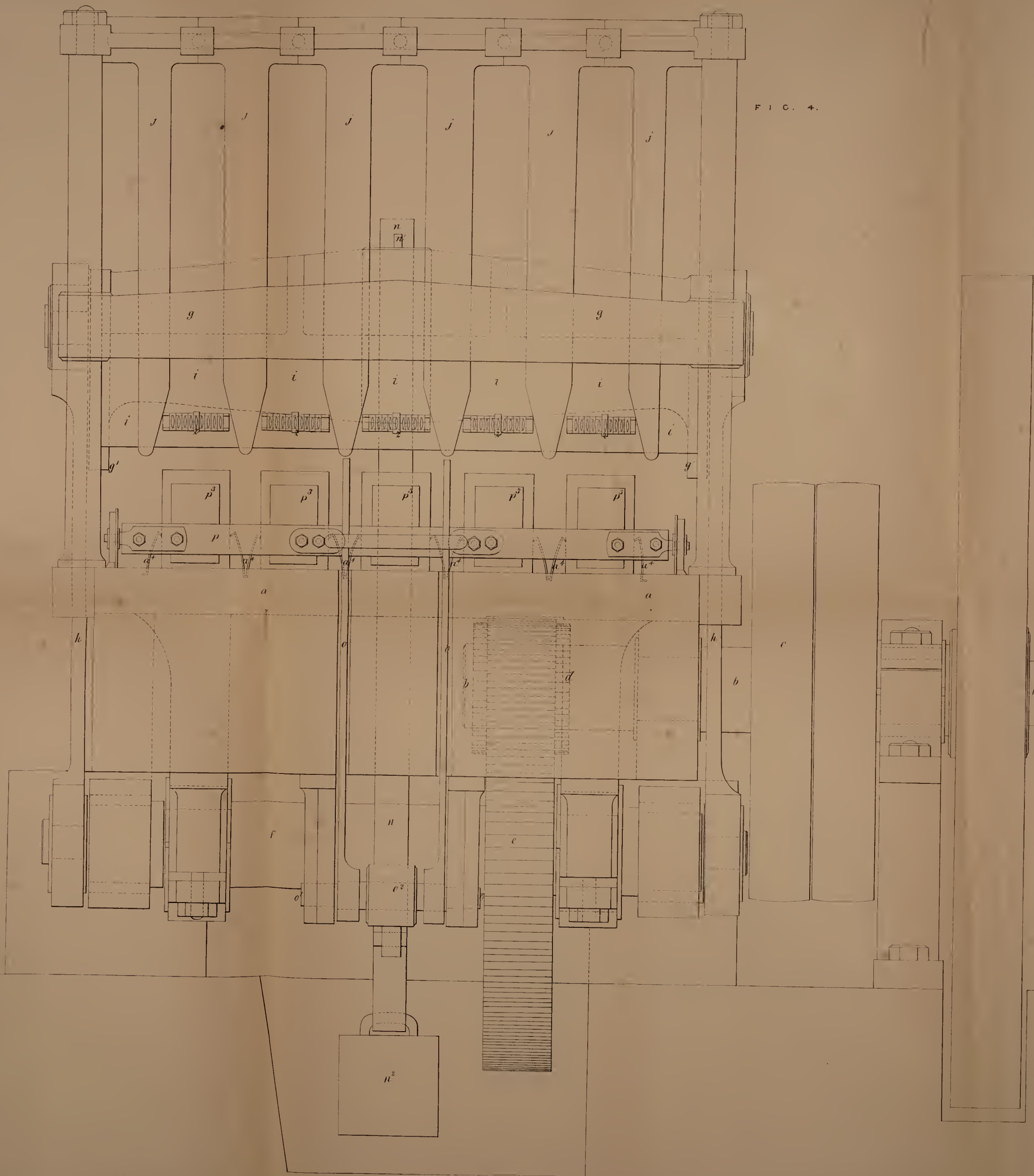
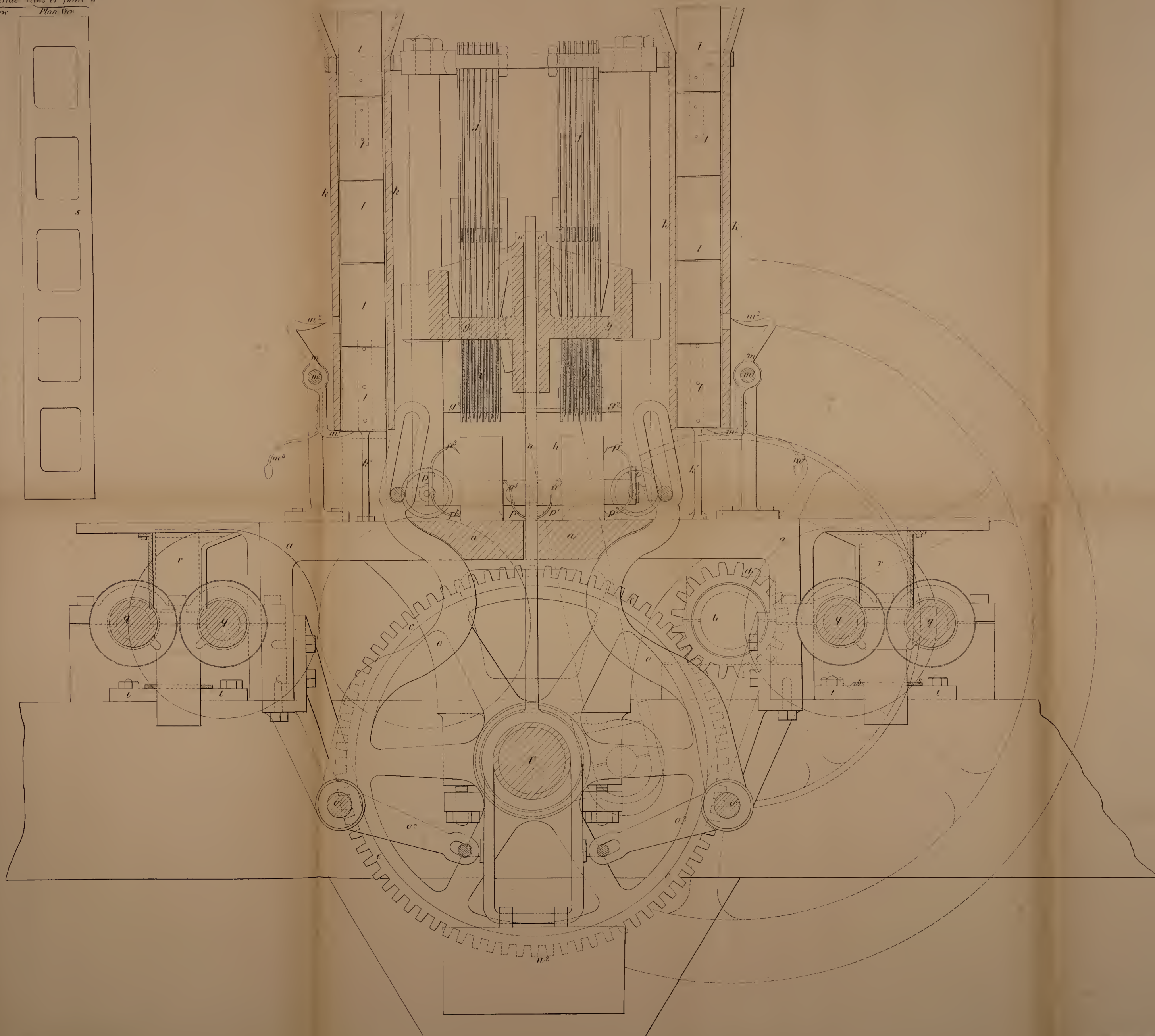


FIG. 4.

Separate Views of plate 5

<i>Edge View</i>	<i>Plan View</i>
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F I C . 5 .



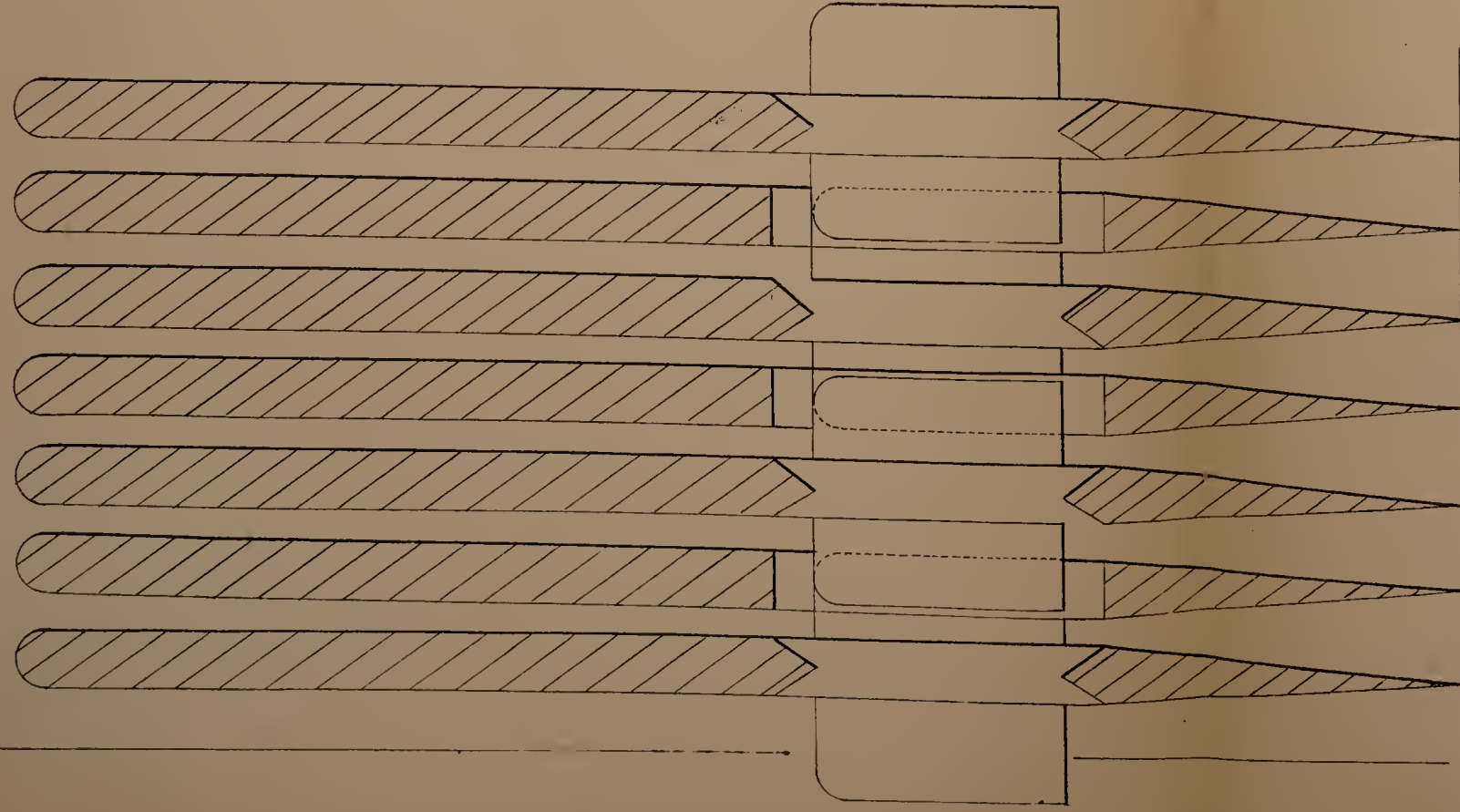
The uncolled drawing is partly colored

RAWA ALUMINIA MALAYSIA

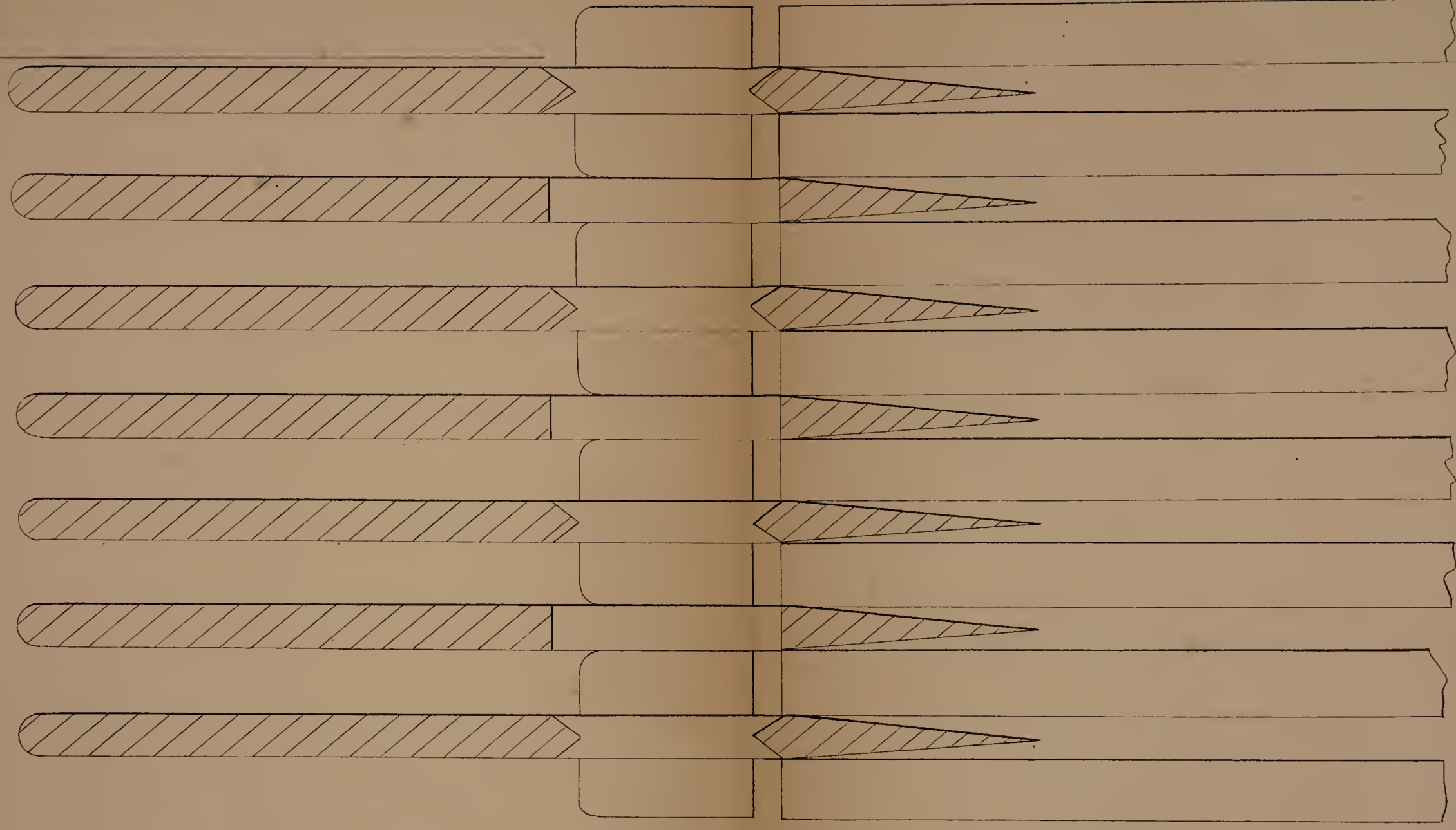
A.D.1849. SEP. 6. N^o 12,759.
TERRY'S SPECIFICATION.

Sections of a Series of cutters upon an enlarged scale.

Sections shewing positions of cutters before splitting the blocks.



Sections shewing positions of cutters after splitting the blocks.

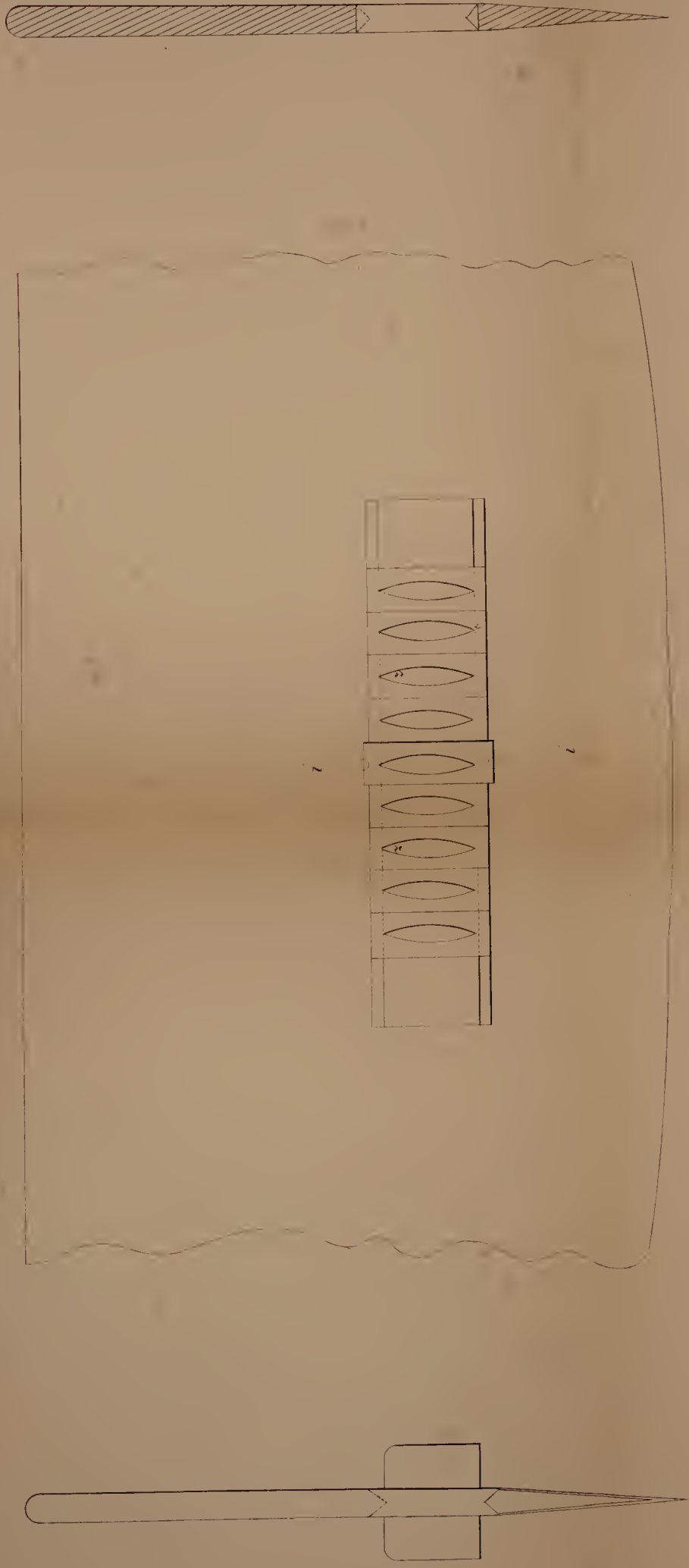


The enrolled drawing is not colored.

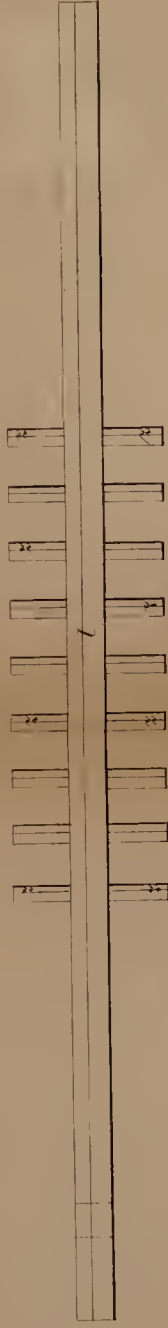
Drawn on Stone by Malby & Sons.



*Separate View of a portion of one of the longitudinal cutters
with its transverse cutters upon an enlarged scale.
Front View.*



Underside View.



*Separate Views of one of
the transverse cutters*



*Separate Views of centre
transverse cutter.*



The enrolled drawing is partly colored.

